

WHAT IS CLAIMED IS:

1. A multi-layer paper comprising at least two paper layers combined by a paper making method, characterized in that said multi-layer paper has at least one peelable paper layer interface having a peel strength of 10 N/m or less, and in that said multi-layer paper is peelable into at least two tissue sheets at said peelable paper layer interface.

10 2. A multi-layer paper as claimed in claim 1, wherein one of the two adjacent paper layers between which said peelable paper layer interface is defined is mainly made of cellulose fibers, while the other paper layer is mainly made of synthetic fibers including binder fibers, said binder fibers exhibiting binder effect at a temperature of 90-120°C.

15 3. A multi-layer paper as claimed in claim 2, wherein said synthetic fibers are heteroatom-containing synthetic fibers.

20 4. A multi-layer paper as claimed in claim 2, wherein said synthetic fibers are polyolefin fibers.

25 5. A multi-layer paper as claimed in any one of claims 2-4, wherein said binder fibers are composite fibers and are contained in an amount of 20-100 mass %.

30 6. A multi-layer paper as claimed in any one of claims 2-4, wherein said binder fibers are single-component fibers and are contained in an amount of 20-70 mass %.

35 7. A multi-layer paper as claimed in claim 5, wherein said binder fibers are composite fibers having a core-

sheath structure, said sheath being comprised of a resin exhibiting a binder effect at a temperature of 90-120°C.

8. A multi-layer paper as claimed in claim 7, wherein  
5 the resin constituting said sheath is a polyester resin.

9. A multi-layer paper as claimed in claim 7, wherein  
the resin constituting said sheath is a polyolefin resin  
or an ethylene-vinyl acetate copolymer resin.

10 10. A multi-layer paper as claimed in claim 1, wherein  
one of the two adjacent paper layers between which said  
peelable paper layer interface is defined is made of  
synthetic fibers including composite binder fibers having  
15 a low melting point component made of a polyolefin resin  
or an ethylene-vinyl acetate copolymer resin, while the  
other paper layer is made of synthetic fibers including  
composite binder fibers having a low melting point  
component made of a polyester resin, both of said binder  
20 fibers exhibiting binder effect at a temperature of 90-  
120°C.

11. A multi-layer paper as claimed in claim 10, wherein  
said one paper layer made of synthetic fibers including  
25 composite binder fibers having a low melting point  
component made of a polyolefin resin or an ethylene-vinyl  
acetate copolymer resin is mainly made of polyolefin  
fibers, and wherein said binder fibers of said one paper  
layer exhibits binder effect at a temperature of 90-120°C  
30 and is contained in an amount of 20-100 mass %.

12. A multi-layer paper as claimed in claim 10, wherein  
said the other paper layer made of synthetic fibers  
including composite binder fibers having a low melting  
35 point component made of a polyester resin is mainly made

of heteroatom-containing synthetic fibers, and wherein said binder fibers exhibit binder effect at a temperature of 90-120°C and is contained in an amount of 20-100 mass %.

- 5 13. A multi-layer paper as claimed in any one of claims  
2-8, wherein said one layer mainly made of cellulose  
fibers contains a release agent.

10 14. A multi-layer paper as claimed in any one of claims  
2-8, wherein said the other layer mainly made of synthetic  
fibers are made of polyester fibers.

15 15. A multi-layer paper as claimed in any one of claims  
1-14, wherein one of the two adjacent paper layers between  
which said peelable interface is defined is made of  
relatively more highly oriented fibers as compared with  
that of the other paper layer.

20 16. A multi-layer paper as claimed in any one of claims  
1-15, wherein at least one of the two surfaces of two  
adjacent paper layers which surfaces define said peelable  
interface has been subjected to a smoothing treatment.

25 17. A multi-layer paper as claimed in any one of claims  
1-16, wherein at least one of said tissue sheet peeled  
from said multi-layer paper has a basis weight of 1-20  
 $\text{g}/\text{m}^2$ .

30 18. A multi-layer paper as claimed in any one of claims  
2-8, wherein the tissue sheet peeled from said multi-layer  
paper and made of the synthetic fibers has a density of  
not greater than  $0.35 \text{ g}/\text{cm}^3$ .

35 19. A multi-layer paper as claimed in claim 3, wherein  
the tissue sheet peeled from said multi-layer paper and

made of the heteroatom-containing synthetic fibers has a density of not greater than 0.35 g/cm<sup>3</sup>.

20. A multi-layer paper comprising at least three paper layers unified by a paper making method, characterized in that said multi-layer paper has, as an intermediate layer, at least one paper layer which can cause intralayer delamination and which has a peel strength of 10 N/m or less, and in that said multi-layer paper is peelable into at least two tissue sheets at said intermediate paper layer.
21. A multi-layer paper as claimed in claim 20, wherein each of the paper layers adjacent to said intermediate layer is mainly made of synthetic fibers including at least binder fibers, said binder fibers exhibiting binder effect at a temperature of 90-120°C.
22. A multi-layer paper as claimed in claim 21, wherein said binder fibers are composite fibers and are contained in an amount of 20-100 mass %.
23. A multi-layer paper as claimed in claim 21, wherein said binder fibers are single-component fibers and are contained in an amount of 20-70 mass %.
24. A multi-layer paper as claimed in claim 22, wherein said binder fibers are composite fibers having a core-sheath structure, said sheath being comprised of a resin exhibiting a binder effect at a temperature of 90-120°C.
25. A multi-layer paper as claimed in any one of claims 20-24, wherein said paper layer which can cause intralayer delamination is mainly made of polyester fibers.

26. A multi-layer paper as claimed in claim 25, wherein said paper layer made of said polyester fibers has a basis weight of 2-8 g/m<sup>2</sup>.

*Sub A 5* 27. A multi-layer paper as claimed in any one of claims 20-24, wherein said paper layer which can cause intralayer delamination is mainly made of cellulose fibers.

10 28. A multi-layer paper as claimed in claim 25, wherein said paper layer made of said cellulose fibers has a basis weight of 5-10 g/m<sup>2</sup>.

*Sub A 15* 29. A method of forming tissue sheets, comprising providing a multi-layer paper according to any one of claims 1-19, and delaminating said multi-layer paper at said peelable paper layer interface to obtain at least two tissue sheets.

20 30. A method as claimed in claim 29, wherein at least one of said tissue sheets has a basis weight of 2-20 g/m<sup>2</sup>.

*Sub A 6* 25 31. A method of forming tissue sheets, comprising providing a multi-layer paper according to any one of claims 20-28, and delaminating said multi-layer paper at said paper layer which can cause intralayer delamination to obtain at least two tissue sheets.

30 32. A method as claimed in claim 31, wherein at least one of said tissue sheets has a basis weight of 2-20 g/m<sup>2</sup>.

*Sub A 2* 33. A tissue sheet obtained by a method according to any one of claims 29-32 and having a basis weight of 2-20 g/m<sup>2</sup>.

35 34. A reinforced tissue sheet material, comprising a tissue sheet according to claim 33 and a reinforcing

member bonded thereto.

35. A reinforced tissue sheet material according to  
claim 34, wherein said reinforcing member is a polymer  
5 film or a metal foil.

*Sub A* > 36. A reinforced multi-layer paper material, comprising  
a multi-layer paper according to any one of claims 1-28  
and a reinforcing member bonded to at least one of the  
10 both sides of said multi-layer paper.

37. A reinforced multi-layer paper material according to  
claim 36, wherein said reinforcing member is a polymer  
film or a metal foil.

15 *Sub A* > 38. A method of preparing a reinforced tissue sheet  
material, comprising providing a reinforced multi-layer  
paper material according to claim 36 or 37, and  
delaminating said multi-layer paper to obtain a reinforced  
tissue sheet material having said reinforcing member  
20 bonded thereto.

25 39. A porous support material for producing a heat-  
sensitive stencil printing master, comprising a multi-  
layer paper according to any one of claims 1-28.

40. A material for producing a heat-sensitive stencil  
printing master, comprising a laminate obtained by bonding  
a thermoplastic polymer film to at least one side of a  
30 multi-layer paper according to any one of claims 1-28.

41. A heat-sensitive stencil printing master comprising  
a porous support, and a thermoplastic polymer film bonded  
to said porous support, wherein said porous support is a  
35 tissue paper according to claim 33.

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42. A method of preparing a heat-sensitive stencil printing master, comprising a step of separating a tissue sheet from a material according to claim 39, and a step of  
5 bonding a thermoplastic polymer film to the peeled surface of said separated thin sheet.

43. A method of preparing a heat-sensitive stencil printing master, comprising separating, from said material  
10 according to claim 40, a laminate having the thin sheet to which said thermoplastic polymer film has been bonded.

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